

Program Abstracts

Wednesday, October 11, 2000

Training and Education, 1:00 p.m. - 2:30 p.m.

Forensic Science Education, R.E. Gaensslen. Both training and education have a role in the preparation of casework forensic scientists, but appropriate education can make the difference between producing a scientist and producing a technician. There is a place for specific forensic science degree programs, especially at the M.S. level in the overall scheme of things. These academic settings are, for most professions, the housing for research and education, specific to the profession or discipline. Without such a base, it becomes difficult for a profession to exist or persevere.

Forensic science academic programs in the U.S. today are weak compared with those of many other professions. There are too few faculty to make critical mass in most programs, and the experienced faculty are rapidly approaching retirement *en masse*. Because there is little opportunity in academic forensic science today, there is no pool of potential replacements in the programs. Most of the programs are marginalized in the universities as well and receive scant internal or external support and funding for research or graduate education.

In spite of this bleak picture, the academic programs continue to attract some very good students and to produce entry-level forensic scientists. A cooperative program between the operational laboratory system and the university in Illinois, designed to bring together the best features of formal education and formal training programs, will be described. This program could provide a model for others.

A final issue is recruitment and retention of the “best and brightest” students who show an interest in forensic science. There is a potential conflict between the stringent QA/QC requirements of casework and creativity. The conflict between reality and expectation must be carefully managed in order to attract and keep bright young people in criminalistics.

Technical Assistance for Prosecution, Kim Herd. With the development of DNA science and forensic application, prosecutors and investigators have gained an invaluable tool. DNA “fingerprinting” can influence every stage of the criminal process. DNA evidence is now relevant in a wider array of criminal cases, including burglary, robbery, assaults, and even terrorism. Indeed, DNA technology has created evidentiary possibilities that would have been beyond imagining just 15 years ago.

With these advances has come increased complexity in the nature and types of cases that prosecutors must handle. Every aspect of forensic DNA typing, from the legal implications to developing scientific methods, requires careful study and analysis. Today, prosecutors must become as informed as possible about DNA technology to use it effectively. Further, prosecutors must be prepared to address policy issues, such as the need for increased funding for DNA databanks, appropriate responses to requests for post-conviction DNA testing, and actions required by new legislation proposing to extend statutes of limitation in rape cases based on the ability to charge DNA genetic profiles. These tasks require up-to-date training and technical assistance that must continue to evolve as quickly as the technology itself. As a result of funding provided by

the Bureau of Justice Assistance, APRI's DNA Legal Assistance Unit has been offering intensive training seminars, publications, and access to a network of premier national experts in the field. The DNA Legal Assistance Unit's Program Manager will discuss the importance of assisting prosecutors to maximize the value of this forensic technology. The Program Manager will discuss the "culture" of prosecutors' offices and how this impacts relationships with the DNA forensic community.

Training for Courtroom Testimony, William J. Tilstone. The main defining characteristic of forensic science is the milieu within which it operates: the adversarial criminal justice system. Testimony is the end-product of forensic science testing and its success depends on the quality of the education and training of the scientist.

In the context of the operation of a modern crime laboratory, education provides the foundation for the scientific expertise of the analyst. Analysts in controlled substances, trace evidence, serology, or toxicology typically have four-year degrees. The educational requirements for DNA analysts are further required to have specific classes in the degree. Other areas of expert evidence, such as firearms examination, are more accepting of the value of training. Training is what converts the foundation of education into something of value in the context of expert testimony. Indeed some jurisdictions (the United Kingdom and Australia, for example), operate professional competency recognition programs on a national basis. The programs including one for forensic science certify degrees of competency based on experiential portfolios. The decisions in *Daubert* and *Kumho Tires* have created an environment in which the onus is on forensic science to demonstrate that there is some substance and objectivity to the knowledge base qualifying a person to speak as an expert. These demand formalization of programs, performance, and progression that challenges present traditional norms.

Education in the Forensic Sciences, Victor W. Weedn. To date, the forensics community has emphasized training, not education. As the forensic sciences mature, this must change. Training may teach people how to perform a particular task, but education imparts why a task is performed. This conceptual understanding is important to forensic scientists to troubleshoot problems, to give effective testimony, and to prepare themselves for a changing environment.

A rigorous science education can also teach a way of thinking — an analytical approach. This approach is important for effective scientific analysis, assessing the relevancy of evidence, and answering the right questions. The scientific process lends credibility and represents a quest for truth. It suggests deep understandings and involves, by its very nature, experimental verification.

Although lab directors will look to certain college chemistry classes, there are generally no educational requirements for forensic science positions. Luckily, positions are competitive, thus raising the standards. Traditionally, forensic science has been populated by non-forensic baccalaureate degrees. Accordingly, most crime lab directors have B.S. degrees and received their training on-the-job. Forensic science programs are growing in popularity, but many are undergraduate programs, often extensions of criminal justice departments, and most are not laboratory-based. Forensic DNA profiling and the introduction of doctorate staff, have led to a greater appreciation of a strong educational background. In fact, DNA analysts, unlike other forensic disciplines, are

now required to have certain college-level coursework. Fortunately, Masters of Forensic Sciences programs, which require a strong science undergraduate degree, are becoming more prominent.

A forensic science academic community provides forensic education, develops and assesses new scientific procedures, serves as a neutral expert pool, and generates a relevant scientific literature. However, the health of academic forensic science programs today can be characterized as a subcritical community, threatened by an aging faculty, without substantial infrastructure, or respect from academic colleagues, and lacking sufficient grant funds. A recognized educational foundation would be the cornerstone for establishing forensic science as a respected scientific profession.

Co-Sponsor Information Session, 3:00 p.m. - 4:00 p.m.

National Center for State Courts, Karen Gottlieb. The National Center for State Courts (NCSC), has its headquarters in Williamsburg, Virginia. It is the premier source of knowledge for and about the state courts. The NCSC was founded in 1971 in response to Chief Justice Warren E. Burger's call for a national organization to serve as a central resource and information clearinghouse for the state courts. Today the 150 employees of the NCSC create, exchange, and apply new knowledge about the administration of justice. The NCSC's leadership and service role is accomplished through the activities of its Research and Court Services Divisions, International Program, Association Services, Office of Government Relations, Education and Technology Center, Court Technology Laboratory, and Institute for Court Management. NCSC contributions include biannual Court Technology Conferences, an annual statistical summary of the work of the state courts, sponsorship of the National Conference on Public Trust and Confidence in the Courts, and workshops and conferences on the state of the art in jury management, case management, and electronic filing.

In 1999, NCSC created JudgeLink to provide a secure home on the Internet for judges. This Internet community will give judges, who often work in isolation, the ability to share important ideas with other judges on-line, and the link will also provide on-line continuing judicial education. Other NCSC initiatives in science and the law include compiling a database of state court judges with experience in scientific evidence admissibility, to serve as a source of information for judges who have questions about scientific evidence admissibility (undertaken with consultant Dr. Karen Gottlieb). Eventually this database will be a component of JudgeLink and allow judges to ask real-time scientific evidence questions of other judges with relevant experience. Also, beginning in the fall of 2000, the NCSC's Distance Learning Center is hosting on-line discussions in response to articles on current trends as part of their Education Forum. One of the threaded discussions will pursue recommendations to the judiciary on post-conviction DNA testing following suggestions from the National Commission on the Future of DNA Evidence.

The Federal Judicial Center, Jennifer Evans Marsh. In 1967, Congress created the Federal Judicial Center (FJC) "to further the development and adoption of improved judicial administration" in the courts of the United States. The Center is an independent agency in the judicial branch of the federal government. The Chief Justice of the United States chairs the Center's board, which also includes two circuit judges, three

district judges, one bankruptcy judge, and one magistrate judge elected by the Judicial Conference, as well as the director of the Administrative Office of the U.S. Courts (*ex officio*).

The Center has three divisions: Judicial Education, Court Education, and Research (which includes the Federal Judicial History Office). The three divisions work closely with two units of the director's office — Systems Innovation and Development and Communications Policy and Design — for print, broadcast, and online media to deliver education and training and to disseminate the results of Center research to judges and court staff. The Interjudicial Affairs Office, part of the Judicial Education Division, provides information to judicial and legal officials from foreign countries.

The Science, Technology, and Law Program: The National Academies, Anne-Marie Mazza. Science, technology, and law are increasingly interwoven in our society; legal systems constrain and protect the conduct of research, while science and technology are frequently a key part of the legal process. In recent years, the courts have been inundated with cases involving issues of science and technology. Such cases cover a wide spectrum of litigation including: mass torts and product liability, patent and copyright, medical malpractice, and environmental, and criminal actions. At the same time, the science and engineering community regularly deals with legal issues involving subpoenas of data, interpretations of scientific information, privacy of medical data, liability hindering research, intellectual property rights, and scientific misconduct.

The National Academies have explored the notion of a new program to study issues at the interface of science, technology, and law. At a November 1997 Symposium, a group of knowledgeable scientists, engineers, judges, lawyers, businessmen, and government officials discussed possible roles for the Academies in science, technology, and law. As a result of the symposium, the National Academies established the Science, Technology, and Law Program to bring together the science, engineering, and legal professional communities on a regular basis to explore pressing issues, improve communication, and help resolve issues between the communities. A major activity of this program is the Science, Technology, and Law Panel, which is co-chaired by Don Kennedy, Stanford University, and Dick Merrill, University of Virginia Law School. The Panel comprises members from the science, engineering, medical, and legal communities.

The American Academy of Forensic Sciences (AAFS), John D. McDowell. Established in 1948, this professional society is dedicated to the application of scientific principles and technological practices for the resolution of civil, criminal, and regulatory issues. The Academy's membership is composed of over 5,000 scientists located in all 50 of the United States, Canada, and more than 50 other countries throughout the world. The Academy consists of ten sections representing scientific specialists from many disciplines, including anthropology, criminalistics, engineering sciences, jurisprudence, dentistry, pathology and biology, psychiatry and behavioral sciences, questioned documents analysis, toxicology and a general section for scientists from other diverse fields of multidisciplinary study.

The Academy is committed to the elevation of scientific accuracy and precision by assuring that Academy members ethically use scientific methodologies and appropriate technology. Academy members are dedicated to incorporating the principles

of sensitivity and specificity of test results in all reports, testimony, and other representations by members. The Academy is dedicated to interdisciplinary continuing education and holds an annual scientific meeting for the sharing of original research results and case studies. Along with newsletters and other brief communications, the Academy publishes a well respected, refereed journal, *The Journal of Forensic Sciences*. As one of the world's preeminent scientific organizations, the AAFS serves as a ready resource for public information concerning any of the forensic sciences.

American Bar Association, Thomas C. Smith. The American Bar Association, (www.abanet.org/crimjust) was founded in 1878 and has over 400,000 voluntary members, principally judges and attorneys admitted to practice in the United States. It is important to note that membership is also available for "Associate Members," who are not lawyers. Some of the Association's principal endeavors include (1) policy development, supporting activities to bring about changes to the justice system and the nation's laws, (2) continuing legal education programs, (3) legal publications, and (4) research and justice improvement activities. Much of the Association's activities are undertaken by its 23 sections, five divisions, and more than 80 commissions, standing and special committees, forums, and task forces. The Criminal Justice Section works with interest areas relevant to "science and the law" and the criminal justice system.

The ABA Criminal Justice Section has approximately 7,500 members. It is composed primarily of judges and lawyers representing all segments of the justice system: state and federal judges, (both trial and appellate), state and federal prosecutors, state and federal public defenders, private defense attorneys, correctional officials, justice administrators, law enforcement personnel, and academics. It also includes approximately 220 associate members who are not lawyers.

The Section's principal endeavors include (1) criminal justice policy and standards development, (2) legal publications, (3) continuing legal education, and (4) lobbying. During the year 2000-2001, the Section will undertake a variety of specific projects and activities pertaining to science and the law. These will include initiatives related to biological evidence and the conviction of innocent persons. These activities are to focus on the development of relevant standards and an examination of whether systemic changes are needed to avoid such erroneous convictions. The Section has already developed Technically Assisted Physical Surveillance Standards (TAPS), published in 1999. In 2001, it will conclude its development of Electronic Surveillance Standards. It will be undertaking a continuing legal education program on cyberspace crimes (November 16, 2000, in Washington, D.C.) and including segments related to science and the law in the Law Education Institute program (January 3-8, 2001 in Vail, Colorado). On the drawing board are publications pertaining to autopsies and firearms forensics.

National Institute of Justice, Anjali R. Swienton. The National Institute of Justice (NIJ) is the research branch of the U.S. Department of Justice and a component of the Office of Justice Programs. The Institute Director is appointed by the President and confirmed by the Senate. Created by the Omnibus Crime Control and Safe Streets Act of 1968, NIJ's mandate is to support research, evaluation, and demonstration programs, development of technology, and both national and international information

dissemination. The Institute actively solicits the views of criminal justice professionals and researchers in the continuing search for answers to inform public policymaking in crime and justice.

NIJ is divided into several offices: the Office of Development and Communications (ODC), which develops and tests research-based programs, brings promising new practices to the attention of the field, and communicates findings and technological innovations through multiple methods; the Office of Research and Evaluation (ORE), which develops, conducts, directs, and supervises comprehensive research and evaluation activities ranging across a wide array of distinct topics including crime control and prevention, criminal justice, and criminal behavior; and the Office of Science and Technology (OST), which directs and supervises technology research, development, and demonstrations to give law enforcement and corrections agencies access to the best technologies available. It also provides technology assistance to these agencies so they can enhance efficiency and effectiveness. NIJ has several funding opportunities each year. Funds are made available to the public through competitive open solicitations. NIJ's research and development portfolio has grown from \$70 million in 1994 to \$322 million in 1999.

In addition, NIJ coordinates and sponsors professional conferences, such as the National Conference on Science and the Law, often in conjunction with other criminal justice and law enforcement agencies, to provide a venue for training and education of scientists, attorneys, and judges. NIJ also conducts focus groups comprised of members of state and local law enforcement, criminal justice, and forensic science communities to draft guides containing best practices in specific areas of crime investigation control and prevention. These guides are published as series. Guides and NIJ publications are available through NIJ's clearinghouse, The National Criminal Justice Reference Service (NCJRS), at 800-851-3420.

Thursday, October 12, 2000

**Emerging Areas of Admissibility / Changing
Standards of Admissibility, 9:30 a.m. - 10:45 a.m.**

Amendments to the Federal Rules of Evidence Concerning Scientific and Technical Proof, Kenneth S. Broun. The decision of the United States Supreme Court in *Daubert* and its interpretation of the Federal Rules of Evidence gave rise not only to a plethora of state and federal decisions dealing with scientific evidence, but also to a widely held opinion that the rules ought to be amended to deal specifically with the admission of such evidence. Subsequent Supreme Court decisions in *Joiner* and *Kumho Tire* both clarified the Court's thinking in *Daubert* and, perhaps paradoxically, added to a perceived need to amend the rules. Several bills were introduced in Congress that would have either codified or changed the rules announced in this series of cases. Lower federal courts and state courts gave varying interpretations of them.

In light of the Congressional interest and varying interpretations of court decisions, the Advisory Committee on the Rules of Evidence had to make some difficult decisions. One course was to leave the question of the admissibility of scientific and technical evidence to case development. Another was to reassess the *Daubert*, *Joiner*,

and *Kumho* decisions and recommend to the Court that rules be adopted that might alter those results. The third alternative, which was ultimately chosen by the Committee and adopted by the Court, was to seek to codify those decisions as simply and accurately as possible into the rules. Whether the amendments to Rules 701-703 have accomplished this purpose is yet to be seen. The amendments must first survive Congressional scrutiny and then pass the rigors of application in the enormous variety of situations likely to be presented to the courts. Only time will tell if the Committee and the Court have helped to further clarify the situation or have confused it. This presenter does believe that the amendments accurately codify and clarify the tests for admission of scientific and technical evidence.

Broadening and Refining Daubert's Methodological Focus, Edward J. Imwinkelried. In *Daubert*, 509 U.S. 579 (1993), the Court announced a new foundational test for the admissibility of purportedly scientific testimony. The Court announced that to be admissible, scientific testimony must be reliable. More specifically, though, under *Daubert* the trial judge does not determine whether the expert's opinion is correct or reliable in a general sense. Rather, the trial judge must decide whether the opinion is reliable in the specific sense that it has been validated by sound scientific methodology.

In *Joiner*, 522 U.S. 136 (1997), the Court elaborated on *Daubert* and made it clear that the foundational showing must include more than "the *ipse dixit* of the expert," (9, At 146). In *Kumho* (526 U.S. 137, 1999), the Court declared that to be admissible, any type of expert testimony must be reliable. However, in ruling on the admissibility of non-scientific expert testimony, the trial judge's focus should be methodological. The best synthesis of the three decisions is that the expert's methodology must pass a "both/and" test.

First, the expert must use a methodology which would be accepted in his or her discipline as suitable for making the determinations. Echoing the Seventh Circuit, Justice Breyer stated that the trial judge must make certain that the expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field (*Id.* at 152). The choice of methodology will vary with the purpose for introducing the evidence. For example, as some perceptive courts recognized under *Frye*, the foundation for testimony about a syndrome used as "a therapeutic tool" will differ from the foundation needed to validate the syndrome as a "fact-finding tool" (*State v. Saldanca*, 324 N.W.2d 227, 230, Minn. 1982).

Second, the foundation must include some objective indium of the reliability of the methodology. The *Kumho* Court reiterated the *Joiner* opinion's insistence that the foundation include more than the expert's *ipse dixit*. 526 U.S. at 157. Moreover, responding to concern about self-validating disciplines, the Court indicated that without more, a showing of the acceptance of the methodology within the discipline does not establish the reliability of the methodology. The Court added:

Nor . . . does the presence of *Daubert's* general acceptance factor help show that an expert's testimony is reliable where the discipline itself lacks reliability, as, for the example, do theories grounded in any so-called generally accepted principles of astrology and necromancy, (*Id.* at 151).

Scientific methodology passes muster under the second requirement. Inductive reasoning is used extensively outside scientific circles. A judge applying *Daubert* need not take the scientist's opinion at face value; the judge can scrutinize the experimentation and observation to determine whether the research appears to be valid inductive reasoning. In other cases, scientific methodology can be used to demonstrate the objective reliability of non-scientific methodology. In the case of questioned document examination, even though his research falls short of validating QD as a scientific discipline, Dr. Kam's research tends to show that QD experts can perform identification tasks much more accurately than laypersons.

It is clear that the courts are not about to mandate that scientific methodology always be utilized to demonstrate the objective reliability of non-scientific expertise. That mandate would be fatal to the admissibility of testimony by experts such as lawyers and musicians. In the future, the challenge will be identifying the non-scientific means of making that demonstration.

An Overview of the Uniform Rules of Evidence (1999) and their Focus on the Admissibility of Expert Testimony, Leo H. Whinery. This presentation will include a brief review of the principle revisions in the Uniform Rules of Evidence of 1974, As Amended, adopted by the National Conference of Commissioners on Uniform State Laws in 1999. The revision of Article VII of the Uniform Rules governing the admissibility of expert testimony will be discussed in greater detail, with reference to the current status of the law in the several state jurisdictions and varying proposals for reform.

Uniform Rule 702, Testimony By Experts, will be summarized in greater detail. This includes provisions providing (1) that the principle or method upon which the testimony is based be established as reasonably reliable; (2) that the principles or methods be reliably applied to the facts of the case; (3) that a principle or method is deemed reasonably reliable if its reliability has been established by controlling legislation or judicial decision; (4) that there is a presumption of reliability or unreliability depending upon whether the principle or method has substantial acceptance in the relevant scientific, technical or specialized community; and (5) that a non-exclusive list of factors are to be considered by the trial court in determining reliability when the reliability or unreliability of the principle or method is challenged. The reasons for the divergence of Uniform rule 702 from Federal Rule 702 as adopted by the Supreme Court of the United States, will be identified (including the jurisdictional differences existing between the federal and several states' jurisdictions), providing greater guidance to the trial judge in existing diversity among the states as to the appropriate standard governing admissibility of expert testimony. This includes states still adhering to the Fyre standard; states adhering to a pre-*Daubert* standard of reliability; states adopting the *Daubert* standard of reliability; states adhering to varying standards of admissibility; and states in which the issue appears to be unsettled. Finally, the results reached among the several states under these varying standards of admissibility will be summarized.

Risk Assessment / Predictions of Dangerousness, 11:15 a.m. - 12:30 p.m.

Developments in Violence Risk Assessment, Randy K. Otto. Mental health professionals, correctional professionals, and the courts are concerned with persons who present a risk of violence to others. Whether in the context of bail decision making, civil commitment, sentencing, or release from mental health or correctional settings, identification of persons who are at increased risk for harming others, and implementation of various interventions to minimize this risk are a priority. Traditionally, mental health professionals called on to assess violence risk employed a clinical approach to information, via interview, record review, and testing. These inquiries, which were idiosyncratic, person-centered, and less focused on environmental contributors to violence, typically resulted in persons being classified by the examiner as "dangerous" or "not dangerous." Research findings indicated that such an approach was unreliable and subject to high error rates in classification.

In the past decade, there has been a dramatic reformulation in the way mental health professionals conceptualize violence, violence risk, and its assessment. New assessment approaches have been introduced (e.g., structured or guided clinical assessment, actuarial assessment) which show greater promise in terms of reliability and validity of decision making. In addition to person-centered factors, extra-personal (e.g., contextual and environmental) factors which can affect risk for violence are being systematically considered by mental health professionals in their assessments; and greater attention is being paid to interventions designed to minimize risk for violent behavior. Finally, mental health professionals have moved from thinking about violence risk in absolute terms to conceptualizing risk in relative terms.

This presentation will identify recent developments in violence risk assessment and intervention, with both criminal and mental health populations. Data will be presented regarding base rates of violence in the general population and more specific populations (e.g., persons with mental illness, persons with substance abuse problems) and information will be given regarding newly developed assessment approaches and their strengths and limitations.

The Scientific Basis for Expert Testimony on Risk Assessment, Marnie E. Rice. Recent developments in the science of violence prediction will be summarized. In contrast to a decade ago, evidence will be presented to show that violence can be predicted with a high degree of accuracy using actuarial prediction tools. It will be argued that courts will increasingly see "battles of differing actuarial instruments" and "battles over the score on a particular actuarial instrument" between expert witnesses for the prosecution and defense. Implications of the current state of the science for legal and mental health experts will be explored.

Call for Papers Presentations, 1:30 p.m. - 2:45 p.m.

An Analysis of the Impact of Juror Characteristics and Contextual Factors on Appraisal of Expert Testimony, Stephen Golding and Jennifer Skeem. Before relevant expert evidence can be presented to jurors, the *Daubert-Joiner-Kumho* trilogy requires that judges competently address three core issues: (a) qualification of an *area of expertise*, (b) qualification of the *methods and procedures* of analysis associated with that

area of expertise, and (c) qualification of *the expert* applying those methods within an area of expertise. Although the first two issues have received substantial attention, the process by which jurors comprehend, conceptualize, and weigh expert evidence is seldom studied. This presentation analyzes and integrates scholarly and empirical work relevant to this issue.

Contrary to assumption, jurors do not approach their decision-making task as “blank slates.” Jurors’ personal attitudes, beliefs, and stereotypes have been shown to influence how they appraise evidence of any type, including expert evidence. While this phenomenon has received some empirical attention, most research designs do not account for the context in which such appraisals occur. The process by which jurors appraise evidence in real cases is a highly contextualized and dynamic. This model for studying the process integrates modern knowledge from the social and behavioral sciences about human decision-making. The presentation specifically reviews what is known about the major individual differences that influence juror decision-making, then addresses three major potential influences on jurors’ evidence appraisal:

- (1) How does the *context* (credentials, objectivity, and methodology) influence a juror’s subsequent appraisal of expert evidence?
- (2) What *presentation factors* influence the credibility and weight assigned to expert’s evidence and testimony?
- (3) How does *non-expert* evidence influence the appraisal of an expert’s evidence? For example, in a death penalty case, what effect has presented after evidence of guilt. When a defendant denies a crime, is found guilty, and *then* presents mitigating evidence; how are jurors influenced?

Views from the Bench: Judges on Judging Scientific Evidence Post-Daubert, Shirley A. Dobbin, Sophia I. Gatowski, and James T. Richardson. Drawing on the responses provided by a national survey of state trial court judges (N=400; response rate of 71%) and on the results of a case law analysis, empirical evidence will be presented with respect to judicial opinions about the utility of the *Daubert* criteria as decision making guidelines and the degree to which judge-respondents actually understand the scientific meaning of the *Daubert* criteria. Results of the national survey indicate that most judges lack the general scientific literacy required for application of the *Daubert* standard. The majority of judges interviewed were unable to provide responses that reflected a scientifically appropriate understanding of the *Daubert* guidelines, especially for the concepts of falsifiability and error rate. Yet, judges confidently responded that these criteria are useful guides in the admissibility decision making process. The majority of judges also believed that the gate keeping role as defined by *Daubert* is an appropriate one for the judiciary. In fact, this role is talked about as their fundamental function, “what judges do,” and “necessary.” Given the active gate keeping role that judges report they are taking in admissibility decision making, even in non-*Daubert* states, their reported lack of understanding of the *Daubert* guidelines and the increasingly complex nature of the science that comes before the court, the results of this research raise concerns about the judicial gate keeping role and the interface of science, law, and technology. The survey results will be discussed in light of the *Kumho* decision and its expansion and clarification of *Daubert* applications. The implications of the survey results for future policy, practice, and judicial education will also be addressed.

Problems Michigan County Prosecutors Encounter When Using Forensic Evidence During Criminal Procedures, Leonald D. Robinson. Because forensic evidence is frequently the cornerstone for successful criminal prosecutions, prosecutors are expected to keep up with the rapid changes and advances occurring in the forensic sciences. But are they?

This study (completed November 1999) investigated whether or not Michigan County Prosecutors were having problems using forensic evidence during criminal trials. Data from a 14-question survey completed by Chief (supervising) Prosecutors from 40 Michigan counties supported the four hypotheses for this study: (1) Prosecutors experience significant (major) problems when presenting forensic evidence during criminal trials. (2) Prosecutors want more information, understanding, and training (e.g. continuing education) for presenting forensic evidence and expert witnesses during criminal prosecutions. (3) Prosecutors rate the forensic laboratories they use for criminal prosecutions as good and very good. (4) Prosecutors feel no need for a revised or updated code of ethics when using forensic evidence during criminal trials. Prosecutors gave four recommendations for helping them to evaluate and understand forensic evidence before criminal trials; eleven recommendations for guiding them during discovery, examination, and qualifying/presenting experts during the prosecution process; and seven recommendations for helping them present forensic evidence to judges and juries during a criminal trial.

This study documented that prosecutors need continuing education for each forensic evidence specialty they present during criminal trials. In particular, they want more education about DNA evidence and using expert witnesses. And they want better ways to present forensic evidence so that judges and juries will understand and be able to weigh each piece of forensic evidence against other types of evidence (e.g., DNA evidence versus an eyewitness account). Prosecutors also desire continuous and immediate access to forensic experts so they can receive immediate and reliable answers to questions, issues, and challenges that arise about their forensic evidence before and during trial. Based on data from this study, prosecutors across America should be queried about their problems with forensic evidence during criminal prosecutions. A national continuing education forensic science curriculum should possibly be developed for all prosecutors.

Breakout Sessions, 3:15 p.m. - 4:30 p.m.

Practical and Ethical Dilemmas Confronting Testifying Experts - Where Attorney's Questions Go Wrong

(Repeats on Friday at 3:30 p.m.)

Defending and/or Presenting an Expert, Susan Fisch. This presentation deals with the practical dilemmas of being an expert witness and defending and/or presenting an expert. Initially, the speaker will discuss the conflicts that arise when an expert is taken out of the academic setting and put into the legal arena. The objectives and language are different within the adversarial arena. With the basic understanding of the objectives of the adversarial process in mind, the presentation shows how to prepare for

expert testimony, both on direct and cross, how to investigate the expert's background, the necessity of the attorney becoming an expert in the same field and how to do this, how to discover the expert through the legal process and investigation, how to litigate the expert and the expertise and how to deal with the expert in the courtroom. Examples from the soft sciences like psychiatry and psychology as well as the hard sciences such as DNA will be incorporated. Participants will leave this presentation with actual tools and ideas to use in their practice.

Ethical and Legal Responsibilities in Using Scientific Evidence, Paul C.

Giannelli. This presentation examines legal and ethical responsibilities that apply when scientific evidence is used in criminal prosecutions. The importance of this subject is underscored by a Department of Justice report discussing the exoneration of 28 convicts through the use of DNA technology — some of whom had been sentenced to death. (Edward Connors et al., 1996, *Convicted by Juries, Exonerated by Science: Case Studies in the Use of DNA Evidence to Establish Innocence After Trial*, 58). A number of these cases involved scientific misconduct. Indeed, in *Actual Innocence*, published earlier this year, Barry Scheck, Peter Neufeld and Jim Dwyer, examined 62 of 67 DNA exonerations to ascertain what factors contributed to these wrongful convictions; one of the more astounding conclusions was that a third of these cases involved tainted or fraudulent science.

The paper discusses the roles of the prosecutor, defense counsel, and expert. The ethical responsibilities of attorneys are specified by each state. Nearly 40 states and the District of Columbia have adopted all or significant parts of the Model Rules of Professional Conduct, approved by the American Bar Association (ABA) in 1983. The ABA also promulgated *Criminal Justice Standards*, which provide guidance on a wide range of criminal procedure such as plea bargaining, discovery, and defense services. The relevant standards in this context are the "Standards for Prosecution Function and Defense Function." A number of legal rules overlap ethical responsibilities. Some, such as the *Brady* rule on disclosure of exculpatory evidence, are derived from the Constitution. Other illustrations include due process violations such as presentation of perjured testimony and obstruction of defense counsel by informing witnesses not to speak to counsel. Pretrial discovery rules, in general, are not constitutionally-based; rather, they are typically based on statutes and court rules.

Forensic science organizations often have their own set of ethical requirements, although they vary widely. For example, the American Academy of Forensic Sciences (AAFS) has an ethical code: "(1) Every member of the AAFS shall refrain from providing any material misrepresentation of education, training, experience or area of expertise. (2) Every member of the AAFS shall refrain from providing any material misrepresentation of data upon which an expert opinion or conclusion is based."

Evaluating Psychological Syndrome Testimony: Admissibility Challenges under *Frye* and *Daubert/Joiner/Kumho*

(Repeats on Friday at 3:30 p.m.)

Syndrome Evidence: Battered Women, Black Rage, PTSD, Child Abuse Accommodation Syndrome: Kumho Challenges, Admissibility and Reliability, Margaret A. Hagen. Syndrome means generally a labeled group of symptoms or

behaviors that tend to occur together in patients often enough that someone has remarked on it and communicated that observation to the larger community of physicians, psychiatrists, psychologists, or lawyers. Some examples include:

- ?? Lying child syndrome
- ?? Parental alienation syndrome
- ?? Confusional arousal syndrome
- ?? Battered woman / child syndrome
- ?? Compulsive gambling syndrome
- ?? Pseudologia fantastica syndrome
- ?? Urban survival defense syndrome
- ?? Child sexual abuse accommodation syndrome

The term "syndrome" begins to take on dangerous weight as soon as it takes on a name, when enough practitioners are using the term to indicate at least provisional acceptance. Given a name, a syndrome is implicitly given a "cause." "Battered Woman Syndrome" makes the assumption that a woman is exhibiting a certain constellation of behaviors because she has been, in fact, battered. "Parental alienation syndrome" makes the assumption that the child is rejecting one parent because his affections have been alienated by the other. "Rape trauma syndrome" assumes that the woman exhibiting the syndrome signs has indeed been raped. "Syndromes" are used to explain deviant behavior, to explain inexplicable behavior to those unfamiliar — like judges and juries — with the way the syndrome supposedly operates.

When judges and jurors hear someone with a string of credentials explaining that this defendant or plaintiff suffers from a syndrome known to the professional community (but not to the public) and that explains some of the unusual factors of the case, what is the trier of fact supposed to think? What if his or her internist diagnosed the trier of fact with "Irritable Bowel Syndrome?" How is the trier of fact supposed to distinguish between the way the internist used the word "syndrome" and the way the mental health practitioner uses the word?

This session will examine the tools made available through the U.S. Supreme Court decisions in *Daubert*, *Joiner*, and *Kumho* for the systematic analysis of the empirical basis of syndrome evidence currently being offered in the courts. The emphasis will be on methodology employed in establishing the existence of such syndromes, including issues of reliability and base rate occurrence. The presentation covers inherent scientific unreliability of generalizing from clinical observations to scientific conclusions and considers the danger of misleading the trier of fact with misapplied rhetoric of science.

The Use of Syndrome Evidence in Criminal Trials: The Case of Battered Woman Syndrome and Subsequent Syndromes, Lenore E. Walker. Battered Woman Syndrome was first introduced in the U.S. courtrooms in 1978 with two cases of women who shot and killed their husbands: *Miriam Grieg* in Billings, Montana, and *Beverly Ibn-Tamas* in Washington, DC. Grieg was found not guilty by reason of self defense by the jury of 12 women who heard the expert testify about the psychological effects of domestic violence while Ibn-Tamas was found guilty of second degree murder by her jury, who were not permitted to hear such testimony. Two years later, the *Ibn-Tamas* appellate courts ruled that the expert testimony offered would meet the Frye Test for

admissibility, as the information on the psychological effects of domestic violence was however scientific and beyond the ken of the average juror. They sent the case back to the trial court, to determine if the expert had the requisite qualifications. Using this prong test, testimony on Battered Woman Syndrome began to be admitted in state courts around the country. Two more challenges occurred in the early 1980s, *Gladys Kelly* in New Jersey and *Joyce Hawthorne* in Florida. The American Psychological Association submitted *amicus* briefs in both cases setting forth the research on battered women and claiming psychologists could offer scientific opinions that differed from what lay people believed about the dynamics of domestic violence. Most appellate challenges have been successful over the intervening years, setting forth various principles, i.e., helping to define “reasonable” objective / subjective perceptions of danger and showing how the syndrome testimony can clarify definitions of “imminent” danger. Although this testimony is most often introduced by the defense today as part of a self-defense or in mitigation during sentencing, it can be used by the prosecution to explain the reluctant or recanting battered woman witness.

Supportive arguments for continuing to use Battered Woman Syndrome testimony in criminal cases include (1) Routine use of a syndrome or patterns of symptoms in clinical psychology for diagnoses and treatment. (2) Identification by Empirical and clinical research does identify a group of symptoms in a particular pattern that constitute the Battered Woman Syndrome. (3) Each state does have provisions for protection of the class called ‘battered women’ in the civil Domestic Violence Prevention Acts and judges determining child custody and access are mandated to consider the psychological impact of domestic violence. (4) Criticism of Battered Woman Syndrome is based on inadequate understanding of the theoretical principles and case facts. (5) The class of battered woman who killed in fear of their lives can be identified in prison and distinguished from women who killed for other reasons.

Can other patterns of symptoms be labeled as a syndrome and introduced as evidence, especially with the *Daubert* and *Kumho* decisions? Obviously, if they meet the tests set forth by the courts in *Daubert*, it would be reasonable and prudent for the court to admit it as scientific testimony but even if there is insufficient scientific data on all *Daubert* points, it still could be introduced under *Kumho* where it appears that there is a more relaxed standard.

The Use of Forensic Entomology in Postmortem Interval Determinations

The Use of Forensic Entomology in Postmortem Interval Determinations, **Jason H. Byrd and Neal H. Haskell.** The science of forensic entomology is gaining widespread acceptance among death investigators as a strong indicator of the postmortem interval, geographic movement of human remains, and criminal misuse of insects. This field is also widely utilized by corporations involved in civil litigation involving such widely diverse areas as structural damage and food contamination. This presentation will focus on the use of entomological evidence to establish the “time since colonization”, and thus indicators of the postmortem interval in human deaths. The utility of entomological evidence in death investigations will be demonstrated through case examples and analysis of actual death investigations. Additionally, current research programs funded by the National Institute of Justice and other local agencies will be highlighted, and

entomological methodologies will be detailed in a discussion format. The presentation will be team-taught with each presenter focusing on research programs, case analysis and basic entomological methods utilized at the death scene.

Trace Evidence: The Smallest Things Can Make the Biggest Difference!, Elizabeth Dunphy Farris and Marjorie Harris. The presentation begins with a brief discussion of a case study in which a man was convicted of an abduction through the evaluation of trace evidence. He was convicted without the body ever having been found. The presentation will consider what exactly trace evidence is:

- ?? How little is too little (size and quantity)?
- ?? How much evidence is too much — should we vacuum?
- ?? In the Wayne Williams case — were fibers really enough?
- ?? At the scene, are controls of carpets, curtains, furniture materials, etc. necessary; and when are we out of control with controls?

The discussion will consider whether there are sufficient identification tags in explosives today, or torn pieces of fingernails, what discipline examines these, and what that evidence says. We will discuss the best method for cleaning utensils and whether “on scene” procedures should be separate or different from what happens at the office or lab. Other questions include:

- ?? How significant is footwear evidence? Is it illegal to walk where a crime has been committed?
- ?? What should be done with “transient” evidence (actually moving or that has been moved)? Is it valid in court?
- ?? What is the difference between coincidental versus circumstantial “evidence,” in a conviction using class rather than individualistic evidence?
- ?? Do small, “transferable” items help or hurt in linking persons and places?

Friday, October 13, 2000

What’s Happening Now and May Happen in the Future with DNA Evidence, 9:00 a.m. - 10:15 a.m.

Predicting and Punishing Antisocial Acts: How Courts Might Use Behavioral Genetics, Lori B. Andrews. This presentation explores the potential role of behavioral genetics in the criminal justice system. In the near term, evidence of genes associated with antisocial behavior is likely to be introduced by defendants for purposes of exculpation and mitigation. But, in the future, such evidence might be used against defendants and potential defendants to justify social controls.

The use of genetic defenses began in the early 1970s with the XYY defense. In Australia, a defendant with the XYY chromosomal complement was acquitted by reason of insanity. In the United States, the XYY defense has been considered under various formulations of the insanity defense, but has not been accepted. More recently, courts have seemed willing, in some instances, to consider a genetic defense by alleging that the defendants are in the early stages of certain genetic diseases, such as Huntington's disease.

In addition to disputing guilt, genetic evidence has been used as evidence to mitigate punishment. In France, a convicted murderer with the XYY chromosomal complement received a lesser sentence. When a California attorney who misappropriated client funds claimed at disbarment hearings that he had a genetic predisposition to alcoholism, he was placed on probation, rather than disbarred. In contrast, another attorney, who had been an alcoholic and misappropriated client funds, but did not raise a genetic defense, was disbarred. It may not have been the genetic condition itself that led to the more lenient sentence. Rather, the court said that "evidence that the petitioner was not properly diagnosed when he was released from his initial treatment program is mitigating." If genetic predispositions are identified for antisocial acts, there may be a strong social interest in attempting to *prevent* the commission of the acts in the first place. A program of prevention might include any or all of the following phases: identifying people who allegedly have antisocial genes, attempting social means to dissuade them from antisocial behavior, keeping such individuals under surveillance, mandating treatment to counteract the genetic propensity, or preventively detaining them to eliminate the opportunity for an antisocial act. To the extent society chooses to define genetic predisposition to antisocial acts as a medical issue, there will be a tendency to allow interventions that would otherwise, in a sheer criminal justice context, be seen as unconstitutionally infringing on an individual's rights.

Implications of Admitting Research Suggesting a Genetic Predisposition to Aggression or Violence, Deborah W. Denno. Two issues dominate debates concerning the legal implications of admitting research suggesting a genetic predisposition to aggression or violence: (1) the reliability, validity, and politics of such research, which has prompted fierce controversy nationally and internationally, and (2) the current evidentiary status of various criminal law defenses, which would include a defense based on genetic predispositions. This presentation starts by reviewing the scientifically discredited XYY chromosome syndrome defense, which was the first major genetic defense to be used, albeit unsuccessfully. The presentation then focuses on attorneys' efforts to test for evidence of genetic deviations in the highly publicized case of Stephen Mobley, a convicted murderer who is now on death row. Mobley's family history demonstrated four generations of violent, aggressive, and behaviorally disordered men and women. The Georgia Supreme Court denied Mobley's appeal of his death sentence, thereby upholding the trial court's refusal to allow Mobley to have genetic testing performed or to allow such evidence to be admitted into court. Next, this presentation discusses the relatively few other cases that have attempted to introduce genetic type evidence. Examples include the *Susan Smith* death penalty case and the *Glenda Sue Caldwell* murder case that introduced evidence of Caldwell's suffering from Huntington's disease, an inherited neurodegenerative disorder. The presentation concludes by discussing the reasons why genetic evidence generally has been shunned by courts in criminal cases and whether such bars to admissibility are justified. For better or worse, genetic evidence, and comparable kinds of biological evidence, will have a substantial impact on juries when such evidence is more fully embraced by the legal and scientific communities.

New Procedures for Identification, 10:45 a.m. - 12:00 p.m.

Immobilized Sequence-Specific Oligonucleotide Probe Assay: A Simple and Rapid Method for Typing mtDNA, Cassandra D. Calloway. Analysis of DNA evidence has proven valuable both in the investigation and prosecution of violent crimes and has had a dramatic impact on the criminal justice system and the public. While analysis of DNA evidence by current nuclear DNA typing methods is typically successful, in some cases, nuclear DNA analysis fails. Failure most often occurs when nuclear DNA is limited, either a result of degradation or simply low copy number. These cases would include shed hairs, bone samples, and highly degraded blood or tissue samples. For these cases, mitochondrial DNA (mtDNA) analysis can be used. mtDNA analysis has proven to be a useful forensic tool because of its high copy number, maternal inheritance, and high degree of sequence variability. A single cell may contain between hundreds and thousands of copies of mtDNA, while only two copies of nuclear DNA. For this reason, mtDNA analysis is successful in cases where nuclear DNA typing fails. mtDNA is also inherited matrilineally. This mode of inheritance makes it a valuable genetic marker for the investigation of missing person cases since in most cases, all maternally related individuals will have identical mtDNA types. As a result, any maternally related individual can provide a reference sample for comparison to the missing person. In addition, the noncoding portion of the mtDNA genome is highly polymorphic, resulting in a high degree of sequence variability between individuals. The highest degree of sequence polymorphism lies within two hypervariable regions of the noncoding region, HVI and HVII. For this reason, both regions have been targeted for forensics purposes.

Currently, mtDNA typing by sequence analysis is conducted by specialized laboratories. These laboratories routinely amplify and sequence the HVI and HVII regions separately and an mtDNA type is reported as the difference from the Anderson sequence (the first full mtDNA genome sequenced in 1981). Although sequence analysis is successful, this method is expensive and laborious. To lower cost and increase throughput, Roche has developed a rapid, sensitive mtDNA typing assay which can be used as a screening tool. The current mtDNA immobilized sequence-specific oligonucleotide (SSO) probe assay utilizes a linear array of 27 probes that detect 1-3 nucleotide differences within HVI and HVII. This assay is a simple PCR-based test similar to the AmpliType PM reverse dot blot assay except the probes are attached to a membrane in lines rather than in dots. As with the AmpliType PM assay, only a thermocycler and a water bath is needed to perform the assay. Up to 40 post-PCR samples can be typed in about three hours, thus allowing for rapid screening of case samples. Once possible matches have been identified with the typing strips, the samples can then be sequenced for further discrimination. Although currently only specialized laboratories routinely conduct mtDNA typing, the SSO typing technology would allow for a simple, rapid, and inexpensive screening tool that could help expand current state lab DNA typing capabilities to include mtDNA analysis. Roche is currently working with the Georgia Bureau of Investigation and the San Bernardino crime lab to validate the mtDNA SSO probe assay in a crime lab setting and on making the assay available to the public.

Emerging Camera Technology for Locating Physical Evidence, Colin L. Smithpeter. Conventional methods of gathering physical evidence at crime scenes are

encumbered by several difficulties including the required effort to develop evidence, poor visibility, chemical hazards, and chemical alteration of evidence. These difficulties limit law enforcement's efforts to apprehend offenders and bring them to justice. Working with a local law-enforcement agency, Sandia National Laboratories has developed a prototype multispectral imaging system that can speed up the investigative search task and provide additional and more accurate evidence. The system, called the Criminalistics Light-imaging Unit (CLU), has demonstrated that it can locate fluorescing evidence at crime scenes under normal lighting conditions and make images of other types of evidence such as untreated fingerprints by direct white-light reflectance. CLU employs state-of-the-art technology to record the entire search process on videotape. This presentation describes the problems addressed, development objectives, CLU camera system, and recent efforts of a CLU camera in the laboratory and crime scene.

Call for Papers Presentations, 1:30 p.m. - 3:00 p.m.

Renegotiating Science: Fingerprinting on Daubert, Simon Cole. Latent fingerprint identification evidence presents courts with a particularly thorny problem under *Daubert* and *Kumho*. On the one hand, latent fingerprint evidence has been universally accepted by court for almost a century now, and it is widely regarded as trustworthy by judges, juries, attorneys and the general public. On the other hand, a number of voices have recently argued that the scientific foundation for latent fingerprint identification is very weak, that fingerprint identification rests on assumption and anecdote, rather than scientific testing.

A *Daubert* hearing, conducted in the case *US v. Mitchell* in 1999, prompted the community of fingerprint examiners to try to articulate a more solid scientific foundation for latent fingerprint identification. At the same time, the hearing prompted defense attorneys, for the first time, to challenge the validity of fingerprint identification under *Daubert*. Although the trial judge ultimately ruled that latent fingerprint analysis is reliable evidence, he did not resolve the question of whether or not it is “scientific.” This issue is likely to arise again.

This presentation discusses the competing definitions of “science” that were deployed by various actors — including the author — during the hearing and links them to parallel debates within the history, philosophy, and sociology of science. Latent fingerprint identification presents a fundamental challenge to the emerging new conception of scientific and technical evidence under *Daubert* and *Kumho*. How the problem of fingerprint evidence is ultimately resolved will have a great impact on emerging legal conceptions of scientific and technical knowledge.

Trace Evidence: Evaluating Significance and Validity When There Are No Hard Numbers, Chesterene Cwiklik. Statistical analysis, so useful in evaluating the significance of DNA testing results, founders in evaluating most transfers of trace evidence. Rapidly shifting reference populations and changing frequency of occurrence data rarely encountered with DNA are typical of fibrous and particulate evidence. Although fiber / particle population databases are important, it would be useful to have a complementary approach, permitting evaluation of contact transfers from another perspective. The approach proposed in this paper is a context-based analysis of trace

evidence based upon examination of background debris and grounded in Bayesian reasoning.

Once a proposition being tested is clearly stated, a testing plan can be devised and the results interpreted to form a hypothesis. The hypothesis should generate predictions that can be tested — i.e., one should be thinking through the consequences, so that if A is true as posited, then X and Y should be observed. In the real world limitations of altered scenes and degraded evidence, one must use the best data that is available and weigh alternative hypotheses. It is here that probabilistic reasoning such as Bayesian analysis is useful, and even in the absence of hard numbers, can be applied to casework problems.

A part of Bayesian reasoning involves weighing the likelihood of a finding if the posited hypothesis is correct (e.g., finding corresponding fibers if contact between two people occurred), against the likelihood of the same finding if something other happened instead. If the former greatly outweighs the latter, the evidence is significant in support of contact. If the latter greatly outweighs the former, the evidence is significant in casting doubt upon contact. The evidence is not significant if the two are not that different. In the absence of statistical data, one only needs to know that one possibility is much greater, much less, or about the same as the other. The examiner often knows this from experience.

The degree to which the examiner's individual experience is the basis for a conclusion is the degree to which the conclusion is subjective. That is why population data is important. When the relevant data base varies significantly from case to case, as it typically does for trace evidence, one can instead establish the actual population of fibers and particles in environments of the parties involved in a specific case. This provides an objective reference for determining whether particular fibers and particles in an assemblage of debris are a normal part of that environment or are foreign to it.

This framework permits an evaluation not only of fibers like clothing from one person on the clothing of the other, but also of the lint and debris on that clothing. The degree of any correspondence with background debris on the other person's clothing provides a context not only for evaluating contact transfer, but also whether the transfer was from direct contact or via an intermediary item, and how certain one can be about any conclusions. Rather than relying upon a rare or unusual type of trace evidence, this method relies upon a multiple cross-check of those additional transfers that would be expected if contact between the main items occurred, and upon a convergence of data toward one explanation or a limited number of well-defined explanations.

When a contact transfer is being posited between two items, unless a correspondence of accompanying debris fibers, or other trace evidence or damage is demonstrated, there is seldom a sound scientific basis for supposing that the contact which resulted in transfer of corresponding fibers was necessarily between those two items rather than between each item and another source. When such correspondence does exist, it has the potential for definitively establishing contact or a weaker association.

In summary, evidence that does not readily lend itself to a statistical treatment can still be evaluated so that the courts can make decisions about its validity and scientific basis; that critical scrutiny of trace evidence need not founder upon examiner experience; and that context-based examinations can answer questions not addressed by methods relying upon statistical tests to evaluate significance.

***The Effects of Daubert v. Merrell Dow Pharmaceuticals on the Admissibility of Expert Testimony in State and Federal Criminal Cases*, Jennifer Groscup, Steven D. Penrod, Matthew T. Huss, Christina A. Studebaker, and Kevin M. O'Neil.** The Supreme Court's decision in *Daubert v. Merrell Dow Pharmaceuticals* established a new set of criteria to be applied to decisions governing the admissibility of scientific evidence. This study was conducted to assess the effects of this landmark decision on the admissibility of expert testimony. Appellate court opinions in 693 federal and state criminal cases spanning a period of more than five years before and five years after *Daubert* were evaluated on over 100 variables related to admissibility of expert testimony. Analysis reveals changes in appellate courts' consideration of *Frye* (the most commonly-cited source of pre-*Daubert* criteria), of the *Daubert* criteria and of several related Federal Rules of Evidence. While the attention paid to and the importance of *Frye* and its general acceptance standard has decreased over time, the importance of the *Daubert* criteria has increased over time. However, this increase is not consistent for all types of testimony. Overall, greater reliance on *Daubert* criteria is observed for cases in which the admissibility of a scientific expert (such as a DNA expert, chemist, or a social scientist) was being appealed. Smaller increases are found in cases with technical experts (such as police procedure experts), medical experts (such as coroners and clinical psychologists/psychiatrists), and business experts (such as tax fraud or business practices). Although *Daubert* criteria are being discussed at growing length by the appellate courts, only criteria related to the requirements of the Federal Rules of Evidence predict admissibility decisions. These criteria include relevance, expert qualifications, assistance provided to the trier of fact, and prejudicial impact. Whether the testimony is scientific or technical in nature also impacts the admissibility of the testimony. Details of appellate court use and application of the *Daubert* factors, of the Federal Rules of Evidence criteria, and of other related factors will be discussed. Consideration will be given to the possible future impact of *Kumho Tire* on trial courts' evaluations of experts.

***"Matches" An Overinference of Data, a Giglio Obligation?*, Frederic Whitehurst.** Forensic chemical analysis of multi-component systems such as paints, polymers, and adhesives have resulted in forensic experts opining that compared systems were alike in "type, texture, and chemical composition" and therefore "could have originated from the same source." However, modern chemical instrumentation and protocols suffer from method and instrument detection limits. Without an expert being able to detect at the very least a significant number of components of such materials, an opinion that compared materials "could have originated from the same source" may very well be an over-inference of data. This paper presents the results of a chemical instrumental analysis of a paint sample utilizing a protocol used in a major U.S. forensic lab. The analysis failed to detect most of the components of that paint sample. The analyst who uses that protocol to compare two paint samples therefore can not render an unqualified opinion that the paints were "alike in chemical composition" and can not know whether those paints originated from the same source. The results however allow the analyst to narrow the population of possible source of those compared paints. The breadth of that population may very well be considered exculpatory in nature and therefore information which should be made available the prosecutor's *Giglio* obligation.

Breakout Sessions, 3:30 p.m. - 4:45 p.m.

Practical and Ethical Dilemmas Confronting Testifying Experts - Where Attorney's Questions Go Wrong

(Repeated from Thursday at 3:15 p.m.)

Evaluating Psychological Syndrome Testimony: Admissibility Challenges Under *Frye* and *Daubert/Joiner/Kumho*

(Repeated from Thursday at 3:15 p.m.)

Ensuring Quality Standards in Forensic Science Laboratories

***Crime Laboratory Proficiency Testing Standards*, Michael G. Sheppo and William Tilstone.** This presentation deals with the concept of standards in two areas: the use that is made of proficiency testing to measure and enhance standards of performance, and the materials that are used as the proficiency test samples.

Introduction. There are many ways that proficiency testing (PT) is used as a quality assurance tool. In all of these, the analyst receives a sample for testing, the composition of the sample is not known to the analyst, and the results are used to assess laboratory performance. Proficiency testing can measure and enhance standards of performance.

Proficiency testing. The significance of proficiency testing as a measure of standard of performance is reflected by the requirements of the ASCLD/LAB accreditation program, the DNA Advisory Board Quality Assurance Standards, and the ABC certification program. The ASCLD/LAB program is moving toward requiring that analysts successfully complete a proficiency test. Controversies in proficiency testing for crime laboratories center on the use of these tests as a measure for performance. What is being measured?

- ?? Should inferences about performance be drawn from testing conducted by analysts in training?
- ?? Does the analyst know that the sample is a proficiency test? Did the test sample receive special treatment?
- ?? What skills and competencies does the test measure — Evidence recovery, evidence analysis, evidence interpretation?
- ?? What is “right” — an absolute or a consensus value?
- ?? How should respondents be scored who did not attempt a test that most regard as mainstream to forensic science analysis?

Standard materials and samples. The manufacture, packaging, transportation, and preservation of proficiency samples limit the successful operation of programs. For example, the analysis of mixed male and female secretions in samples from sexual assault victims raise a significant quality issues in forensic biology. The manufacture of several hundred identical samples constituting a realistic facsimile of the case situation is extremely difficult to accomplish. Trying to present these as robust simulated cases, keeping the analyst unaware that the material is from a proficiency test, is almost impossible. Usually, the simpler the presentation the more reliable the test, but the test is not representative of a true case. The administrative infrastructure surrounding

proficiency testing, (confidentiality and consensus reports) adds to the complexity. However, comparing results between participant laboratories can be useful. The consensus value establishes a benchmark for materials and methods.

Secondary standards provide another approach to quality assurance. Here, the material is not intended to be representative of case samples, but does contain a target analysis (physical, chemical, or biological material). The secondary standard is of certified content within the known limits of method dependency. These reference materials can be used for training, method validation, corrective action assessment, competency certification, and in some instances to meet operational requirements for use of standards traceable to National Standard Reference materials. The presentation will describe NFSTC's Quality Sample Program, which has been designed to provide a range of secondary standards.

The Law's Treatment of Medical Expertise: The Roles of Clinical Judgment and Epidemiologic Research

Clinical Medicine in the Courtroom, M. Gregg Bloche. In the wake of *Daubert* and *Kumho Tire*, the place of medical testimony in the courtroom remains deeply unsettled. Judicial treatment of clinical evaluation bearing on the etiology of illness and symptoms when causation-in-fact is at issue in tort cases has been inconsistent, and the discretion afforded to trial judges in *Joiner* means that this inconsistency is likely to persist. Outside the tort law sphere, there has been a puzzling absence of *Daubert/Kumho Tire* gatekeeping by federal judges when litigants have offered clinical testimony. In criminal cases, testimony by psychiatrists and other physicians concerning criminal responsibility, competence to stand trial, and other issues appears not to be evaluated by *Daubert/Kumho Tire* standards. The same is the case for clinical testimony bearing on "medical necessity" in health insurance coverage cases. This presentation will explore these inconsistencies with an eye toward better understanding, both of the ongoing controversy over clinical testimony in tort cases and the dramatic (but rarely discussed) differences between the place of *Daubert/Kumho Tire* scrutiny in the tort setting and in other legal contexts.

Epidemiologic Evidence in the Courtroom, Barbara Hulka. Epidemiologic studies are conducted in human populations in order to describe the patterns of disease occurrence and to study the determinants of disease. Most studies of importance to the legal profession are of the latter type where exposures of concern are postulated to cause particular diseases or injuries. Exposures may be pharmaceutical agents, medical devices, consumer products, chemical or physical agents in the occupational or environmental setting, biological agents (e.g., viruses, bacteria, life style factors), etc. The epidemiologist designs and conducts a study to determine if there is an association between one or more exposures and specified diseases. If an association is identified, one evaluates the possibility that the association is due to chance (a statistical issue) or due to bias in the study. Bias can be introduced at the design phase of the study and may be difficult to eliminate through analytic strategies. The use of appropriate study designs, data collection techniques and analytic methods helps to reduce the possibility of bias, and shows the strength of the association (often expressed as a risk ratio) and the likelihood that the risk ratio is truly elevated (based on a confidence interval).

To infer causation between an exposure and a disease requires more than an unbiased study in which the risk ratio is elevated and the lower bound of the 95% confidence interval exceeds one. Bradford Hill was one of the first proponents of guidelines to be met when inferring causality (*Proc. Roy. Soc. Med.* 58:295-300, 1965). These have been modified repeatedly but certain themes persist: temporality — the exposure must precede the disease; strength of association — risk ratios >2 imply causality but lower risk ratios do not preclude causality; consistency — replication of results in different populations, using different study designs by different investigators; dose-response relationship — the higher the exposure, the greater the rate of disease; coherence of evidence from epidemiological studies, clinical studies, and laboratory experimentation.

Meta-analyses of epidemiological studies are frequently conducted when multiple individual studies on a given topic are not conclusive with respect to showing an association between exposure and disease. This may occur when the sample sizes are small, the disease events are rare, and the true underlying risk ratio is close to one — making a small, but potentially important elevation, hard to detect. In a meta-analysis, the studies are pooled, sources of heterogeneity among studies identified and the results of homogeneous studies combined to obtain more precise estimates of the association. An example will be presented of several meta-analyses conducted to evaluate the postulated association between silicone breast implants and connective tissue diseases.

Saturday, October 14, 2000

Blood / DNA Evidence, 8:45 a.m. - 10:00 a.m.

Blood / DNA Evidence, Lisa Forman The forensic scientist's tool kit has improved greatly since the 1950s. During the time of the Clutter murders, ABO blood typing and other serological tests were available, but their power of discrimination was weak and their sample requirements persnickety by today's standards. Thus, samples for serological markers had to be large and fresh and, even when the analysis yielded results, those results often failed to differentiate one person as distinct from a large number of others. There were investigative leads that could be generated from analysis of blood spatter patterns, providing some information about the type of weapon used and possibly the height and / or handedness of the perpetrator(s). None of these tests, however, could provide definitive information as to the identity of individuals. By the late 1980s, forensic DNA testing began to be routinely used in crime laboratories. Biological stains left at crime scenes could be tested for the presence of specific genetic markers known to differ between individuals. Crime scene evidence can now be examined for minute traces of biological residue to determine with exquisite precision the source of that sample, and methods are being refined daily that allow ever smaller, aged, or other marginal samples to yield abundant information about its donor's identity which would have been mute to those investigating the *Clutter* case. This talk will discuss the basics of DNA analysis methods as well as which specific evidence items from the *Clutter* case could have been subjected to DNA testing, and what the results may have been able to tell investigators, had the technology been available at the time of the crime.

Blood / DNA Evidence, David E. Meier. Given recent developments in forensic science and laboratory technology, a successful investigation and prosecution of a criminal case, particularly a violent murder case, is built is the crime scene. If the crime scene investigation is organized and thorough, the chances of making an arrest and, more importantly, securing a conviction are significantly increased. To be successful at trial, however, prosecutors, police, and forensic scientists must work together, from the initial crime scene investigation through the laboratory examinations and the critical trial preparation stages, to ensure that the government's courtroom presentation of crime scene evidence and related testimony of the expert witness before the jury are compelling. At trial, expert testimony regarding the crime scene investigation (including collection, handling, and preservation of forensic evidence) and the crime scene interpretation (including examination and analysis of evidence) will often provide the prosecutor with the necessary objective, scientific facts to prove beyond a reasonable doubt the identity of the murderer and to uncover what actually happened at the crime scene: how the murder occurred. To achieve these goals before the jury, extensive trial preparation between the prosecutor and the forensic scientist is essential. Thereafter, it is all courtroom execution: a concise, well-organized direct (and, where appropriate, re-direct) examination of the expert witnesses, using physical evidence, visual aides, and strategically-crafted hypothetical questions.

In the context of these general principles, the crime scene investigation and interpretation of (1) the bloody footprints observed at the scene and (2) the blood spatter detected upon one the defendant's boots are potentially critical forensic evidence in the prosecution of Richard Eugene Hickock and Perry Edward Smith for the November 15, 1959 murders of the Clutter family in Holcomb, Kansas. Coordinated efforts between the prosecutor, police, and forensic scientists, beginning at the crime scene inside the Clutter family home, then in the state crime laboratory, and ultimately during preparation for trial, ensure that the courtroom testimony regarding the bloody footprints at the scene and the blood spatter evidence on Perry Smith's boots is most effectively presented to the jury.

Blood Evidence in the Year 2000, Rita Aliese Fry. Blood evidence today would likely be subjected to forensic DNA analysis. Faced with such evidence, the defense should start by learning the language, and the fundamental concepts of the expert. It would get the standard texts, talk to some experts in the field, and get transcripts of other experts. Defense would get anything the opposing expert has produced on the case: not just reports, but lab procedures and protocols, lab or "bench notes," and test results, not merely the conclusions or opinions written in the report. Defense could visit the labs and interview the witnesses with another witness, under the same demands to prove statements or impeachments. They would depose the expert, if possible. If not, defense can seek the court's help in getting a summary of testimony, as the federal courts require under Rule 16. Summary of testimony should run the procedures and conclusions of the prosecution's expert by defense's own expert. Then, defense would apply the standards of the expert's previous testimony to the expert and apply the standards of the expert's own lab to the expert. These standards should be publicly available, or they should be available through the requirements of any accrediting institution, such as ASCLD.

The materials should also be subject to the discovery process or found in the files of other lawyers who have earlier handled similar cases. Defense can apply the expert's procedures and conclusions in its case to other lab standards, forensic articles, and to standard texts. Concealing exculpatory laboratory results violates the dictates of *Brady v. Maryland*. The opposing expert's opinion should be clear and understandable. Defense should always make a specific written request for forensic test results and exculpatory information before trial, and they should make a motion before and after trial to preserve evidence that could later be subjected to forensic testing. This could be important for testing that is presently unavailable, but which may bear on the case as science makes new advances. This has happened with DNA testing, which has recently cleared many wrongfully convicted people. In the presenters' offices many exonerated defendants have been served before and after trial, with defense's own DNA testing.

Firearms and Toolmarks, 10:30 a.m. - 11:20 a.m.

Firearms Evidence in the Clutter Murder Case, Lucien C. Haag. This presentation will summarize the nature of the firearms evidence associated with this 1959 quadruple homicide, the types of analyses and comparisons that were available in 1959, what was and was not done at the time of this sensational case and prior to the apprehension of the two suspects, Perry Smith and Richard Hickock. This will be followed by a brief discussion of the testing carried out upon the recovery of Richard Hickock's 12-gauge shotgun and a number of fired shotshells buried by the suspects immediately after the crime. Finally, the changes in shotgun ammunition and the development of new analytical techniques currently available will be illustrated, which stand to improve the forensic scientist's ability to associate a particular gun and ammunition with crimes involving this type of firearm.

Firearms and Toolmarks, Amie L. Clifford. This presentation explores the strategic reasoning in which a prosecutor must engage when a criminal case involves firearms or tool marks evidence. The presence or existence of firearms or toolmarks evidence in a case requires a prosecutor not only to learn about the particular science involved in the identification of such evidence and the results of any examination or testing performed in the instant case, but also to familiarize himself or herself with the terminology involved and the use of such weapons or tools. A prosecutor must also be familiar with other evidence involved in the case to understand the import of any firearms or tool marks evidence. It is also necessary to examine the circumstances under which the firearms or tool marks evidence was obtained to determine if there can be challenges to the admission or use of such and how to respond to those challenges. The presentation will include, in outline form, the action to be undertaken by a prosecutor faced with firearms and tool marks evidence. Sample predicate questions for qualifying an expert and admitting this type of evidence will also be included. The final portion of the presentation will focus on the *Clutter* murder case and discuss the firearms and tool marks evidence in that case.

Guns for Dummies (or Ballistics for Lawyers), Henry J. Hall. Lawyers should approach ballistics evidence asking the same questions that would be asked with any other scientific evidence: What does it mean to my case? Is it important? How strong is

it? Does it help or hurt my case? Is there peripheral ballistics evidence that can help my case even if the primary issues are damaging? Is the “science” involved valid?

What Does It Mean to My Case? In the case discussed in *In Cold Blood*, a preliminary view would suggest that very little time would be spent on ballistics evidence. In this case, there were no shell casings found at the crime scene so the value of the shotgun in establishing the identities of the perpetrators would be minimal except to the extent it corroborates the confessions.

Are There Peripheral Issues? The first thing that a defense lawyer would check would be the weapon itself, its function and whether it would be easily discharged. Perry’s description of the first shooting is that he aimed the gun and the “room just exploded. Went blue.” The lack of a memory of purposely pulling the trigger would suggest that little effort was necessary to do that. If the shotgun had a light trigger pull or was damaged in some way which made it easier than normal to discharge, that fact could lead to the conclusion that the shooting began by accident, and triggered or deepened a dissociative state on Perry’s part and the remaining killings followed. While none of this would lessen Perry or Hickock’s *legal* culpability, it could lessen the *moral* culpability, one of the cornerstones of a successful penalty-phase defense.

Ballistics Issues in Other Cases. Although the Perry / Hickock case does not directly raise many sophisticated ballistics issues, many cases will. In these cases, there is no substitute for a competent expert. However, in all cases, lawyers should go through the ballistics evidence themselves, as logical lay people, and think about what makes sense and what does not.

There are a few things which lawyers should keep in mind when conducting their own examination. The most fundamental is that most ballistics opinions are just that, opinions, not statements of scientific fact. Under the microscope, the extractor marks or other toolmarks may show differences. Many of the ballistics opinions expressed as “science” may, in fact, be junk. In determining projective composition, some labs melt down projectiles and chemically analyze components to try to conclude whether they have come from the same batch. With such analysis, defense should check the databases on which such opinions are rendered as well as the results themselves. The lab typically will say that they are within the parameters of a given group. Nearly every manufacturer has a “recipe” for the lead it pours, and current databases are generally internally generated and not very large. This issue, a fertile field for conflicting analyses, has also plagued DNA analysis.

Similarly, toolmark testimony is often based on manufacturing techniques which were long ago abandoned. Most ballistics experts will gladly discuss these issues. Listening to and applying these discussions to the case can result in effective examination or cross-examination.

Conclusion. Many jurors will believe that they have some familiarity with ballistics issues, even if it is only the basics of how a gun works. Lawyers who have cases involving guns may exploit this familiarity in a way that is not possible with many other types of scientific evidence. *All* of the possible implications of the ballistics evidence in a given case should be determined and evaluated to create an effective strategy for the case.

Trace Evidence – Footprints, 11:20 a.m. - 12:00 p.m.

Footwear Impression Evidence in the Clutter Homicides Case, William J. Bodziak. The *Clutter* crime scene revealed two footwear designs, one with a Cat's Paw design and the other with a diamond-pattern design. The method of recovery of these important pieces of evidence in 1959 will be reviewed and compared against the methods and materials that are commonly used now. In addition, the results of the FBI Laboratory's examination of these crime scene impressions against the boots of Richard Hickock and Perry Smith will be reviewed and compared against examination procedures and results of a modern day examination. A brief overview of footwear examination methods will also be discussed.

A Strategy for Presentation of Trace Evidence in the Clutter Case, Mitchell Benson. Under the fact pattern of the *Clutter* murders, the strength of the presentation's case lies in the confessions of the respective defendants and the testimony of informant Floyd Wells. Under these circumstances, the physical and forensic evidence is useful primarily as a corroborative tool. Police investigators are ordinarily responsible for inventorying the recovered items of evidence and submitting them to qualified laboratories for scientific analysis. A prosecutor reviewing the reports generated from these laboratory examinations must make an initial assessment: Is the forensic evidence consistent with the defendants' confessions and the statement of Floyd Wells? Do the various types of evidence interest in a manner that gives rise to a cohesive theory of prosecution? Are the inconsistencies, if any, explainable?

The forensic evidence in the *Clutter* case dovetails quite nicely with the defendant and informant statements. Expert witnesses can be presented in quick succession, and the issues do not require examination by multiple experts. The courtroom testimony itself should be simple and direct. Recitation of expert qualifications should be brief, sufficient to establish the witness's expertise without creating an aura of arrogance or conceit.

The emphasis must be on how the jury receives and understands the evidence. All other considerations (other than those relating to truthfulness, accuracy, and the integrity of the scientific process) must take a backseat to communicating a clear, understandable message to the jury. To this end, the expert witness must accede to the prosecutor's judgement in the structuring of a Q and A, although the prosecutor seeks guidance regarding the best way to elicit the critical information. Ultimately, the prosecutor must decide how this information can most effectively be conveyed to the jury and communicate to the expert what is useful and relevant in the analysis. Expert witnesses often come to court with a prepared set of predicate questions they would like attorneys to follow; but, unlike the laboratory, in the courtroom the jury decides what is "a fact."

An interesting hypothetical would be presented if the defendants had not confessed to their roles in the murders. Would the physical and forensic evidence, wither standing alone or in conjunction with the testimony of Floyd Wells, be sufficient to establish guilt beyond a reasonable doubt? Several factors converge to form an incriminating case:

?? The two defendants, once cellmates in a Kansas prison, are observed by a gas station attendant a few miles from the Clutter home on the night of the

murders. They are found traveling together weeks after the murder in a stolen car in Nevada.

- ?? Defendant Smith mailed to himself a package containing two pairs of boots with soles consistent with prints found at the crime scene. One of the boots had human blood, albeit an insufficient amount for purposes of typing.
- ?? A knife and shotgun are recovered from the home of defendant Hickock.
- ?? The shotgun is compared to shells recovered from a ditch, with positive results.
- ?? The shells are recovered alongside a roll of tape consistent with, and perfectly matched at the end, to tape recovered from the crime scene.
- ?? Blood found on the knife was of the same genetic type as that of deceased Herbert Clutter.

If the murders had occurred today rather than in 1959, the blood from the knife might be matched through DNA to the crime scene, and the case would be even stronger. In a case based solely on forensic evidence, expert testimony obviously takes on greater significance, and more attention would be given to the expert's qualifications and the underlying science. However, the principles of clarity and brevity nonetheless apply.

Footprints, The Defense Perspective, Jeffrey E. Thoma. While great inroads have occurred since 1959 in various forensic sciences, the presentation of footprint impression evidence has not evolved significantly. There remain certain factors which an expert may point to for comparative purposes, such as size, wear characteristics, and pattern. Such comparisons may now be done by computer-aided graphic comparisons, where in the past methods called specifically for layman's analysis; but otherwise, this expertise has not evolved significantly.

With regard to size and pattern, the number of specific footwear made by a manufacturer in a given size may sometimes be astronomical, particularly if it is a popular style. Further, wear characteristics generally require a better imprint from which to draw such characteristics such as pattern and size. Preservation of the crime scene in this regard is crucial for such analysis, and often peace officers first at the scene may be unaware of the importance of footwear impressions and have walked over and through the scene before evidence technicians realize the value of this evidence. In these instances, it is crucial to have everyone with access to the scene undergo analysis of their footwear to ensure that these impressions are accounted for.

There remains a crucial nexus which must be established: availability of the footwear to the suspect, which often depends upon the same statement the suspect gives in attempting to avoid prosecution. Thus, often the reliability of the statement(s) are crucial to the nexus. Any such statement may be analyzed for circumstances which tend to rebut or refute it or bear against the means with which the statement is procured. Circumstantial evidence may tie the suspect to the footwear, and reliability of this information needs to be thoroughly examined by the defense.

Trace Evidence – Rope and Tape, 1:15 p.m. - 2:00 p.m.

Tape and Cordage Evidence in the Clutter Case, John I. Thornton. Surgical adhesive tape and nylon cord was used to bind the victims in the *Clutter* case. Later, the

defendants led investigators to a site where a roll of tape and additional cordage was recovered. At trial, a physical match was demonstrated between one torn end of the tape at the scene and the recovered roll. Additionally, the cordage at the scene was identical in all observable respects to the recorded cordage. In connection with physical matches of torn surfaces, no paradigm shifts have taken place since the late 1950s. If the evidence in the *Clutter* case were submitted to a forensic laboratory at the present time, the tape would be handled in precisely the same manner as it was in 1959 and 1960. The only probable difference is that the photographs of the physical match in the torn tape would now be in color. With respect to the cordage, current protocols of analysis would likely call for Fourier Transform Infrared Spectrophotometry on the nylon fibers, and many analysts would verify the similarity of the nylon fibers by means of a microscopic examination of their cross-sections. Pyrolysis-gas chromatography could also be used for a rigorous determination of the polymeric composition of the fibers.

A Strategy for Presentation of Trace Evidence in the Clutter Case, Mitchell Benson. Under the fact pattern of the *Clutter* murders, the strength of the presentation's case lies in the confessions of the respective defendants and the testimony of informant Floyd Wells. Under these circumstances, the physical and forensic evidence is useful primarily as a corroborative tool. Police investigators are ordinarily responsible for inventorying the recovered items of evidence and submitting them to qualified laboratories for scientific analysis. A prosecutor reviewing the reports generated from these laboratory examinations must make an initial assessment: Is the forensic evidence consistent with the defendants' confessions and the statement of Floyd Wells? Do the various types of evidence interest in a manner that gives rise to a cohesive theory of prosecution? Are the inconsistencies, if any, explainable?

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Tape and Rope, The Defense Perspective, Jeffrey E. Thoma. With regard to trace evidence of this nature, it is extremely easy to compare tape which is torn to other portions of that particular roll of tape, if available. This evidence would be more difficult to compare if it had been cut; but even then, such would allow for some definitive comparisons here, particularly with the manufacturer and design known. Rope has several features for comparative purposes; texture, composition, size, and length are but a few.

Because these items allow for definitive comparisons in this case, the presentation will instead review the changes in admissibility standards from 1959 to the present day regarding such expert comparison. While the standards vary from jurisdiction to jurisdiction, this will be an overview of those standards as they relate to the type of evidence proffered here.

Psychiatric and Psychological Evidence, 2:30 p.m. - 3:45 p.m.

Psychological Issues in the Clutter Case: Then and Now, Norman G.

Poythress. This presentation will focus on three psychological issues that were, or might have been raised, in the *Clutter* case: adjudicative competence, mental state defense, and capital sentencing. Changes since 1959, in both the law and in the tools and technology for psychological evaluations will be discussed with an emphasis on how psychological evaluations of defendants Hickock and Smith might differ today as a consequence of these changes. Other psychological issues not raised by the defense in the *Clutter* case will be noted.

The Insanity Defense at Trial, E. Michael McCann. The presentation will address the need to assess the definition of insanity for jurisdictions and realistic objectives of the defense. What verdicts and sentence ought be targeted: whether not

guilty by reason of insanity, guilty but of a lesser offense because of mental problems, or guilty but not deserving of capital punishment because of mental problems? Long-term preparation will be discussed, along with the need for early psychiatric / psychological exams and recognition of the need for a thoroughgoing neurological work-up, when there is a prior head injury of the defendant. What are the uses and misuses of competency exams; the potential impacts of addiction, childhood abuse, and personality disorders; and considerations in selecting the psychiatrist or psychologist? Participants will hear about possible roles for lay witnesses; critically needed background information on the defendant (including all medical reports and other information relating to any potential brain injury), jail infirmary records, pre-sentence reports, school and military records, prior civil and criminal court records, parole and probation records, and mental health records of family members. There must be some cooperative preparation between counsel and the psychiatrist or psychologist. Counsel also must access and assess the other side's psychiatric or psychological reports and consider concerning *voir dire* in an insanity case. Some key points in direct and cross-examination of the psychiatrist / psychologist will be discussed.

Strategic Reasoning for the Use of Psychiatric or Psychological Evidence,
Charles Sevilla. This presentation explores the strategic reasoning in which a defense attorney must engage when handling a case in which psychiatric or psychological evidence is available for use in defending against a criminal charge or mitigating guilt at sentencing, both capital and non-capital. The possibility of using psychiatric or psychological evidence requires defense attorneys to not only familiarize themselves with the evidence in the instant case, but also to more fully investigate the crime and the defendant's background. Counsel must not only meet with the defendant and review his/her medical records, but also interview people who have known or treated the defendant, *e.g.*, family members, neighbors, friends, teachers, doctors (private and institutional), probation officers, prior attorneys, and co-workers. Defense counsel must also decide whether to have the defendant examined and, if so, by whom and under what circumstances. Once a decision is made to proceed with a psychological defense or a case in mitigation, defense counsel must then prepare the witnesses needed for such, and any legal arguments necessary to insure that such evidence will be admitted.

The presentation will include, in outline form, the action needed to be undertaken by a defense attorney in a case involving psychiatric or psychological evidence. The final portion of the presentation will focus on the Clutter murder case, and discuss the psychiatric and psychological evidence therein and what a defense attorney could do with such.